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# When less-virulent becomes virulent!! An atypical presentation of Streptococcus Viridians.

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## Introduction

- Infective endocarditis (IE) is a life-threatening disease, and its timely diagnosis, antibiotic treatment, and management of complications is critical to optimal outcomes.
- We present a case of a 45-year-old man with **no-known risk factors** who presented in respiratory distress and was found to have **viridians streptococcal aortic valve endocarditis**.

## Case Presentation

- 45 y/o male with no significant PMH presented with worsening dyspnea, fevers and chills.
- Upon Arrival
- Temp 101.3, BP 125/67, P 122, RR 26
- In respiratory distress, had b/l rales, no murmurs, no raised JVD, no peripheral edema
- CXR showed mild cardiomegaly with pulmonary vascular congestion.

## Clinical Course

- Reported new onset of chest heaviness and cough while in ED.
- Rapid deterioration in respiratory status which required urgent intubation.
- Urgent bronchoscopy done in setting of acute hypoxic respiratory failure with concerns for multi-focal pneumonia, revealing diffuse alveolar hemorrhage.
- Started on broad spectrum treatment for both bacterial and viral causes of ARDS.
- ECHO showed **severe aortic insufficiency** related to suspected large vegetation with leaflet disruption.
- Intraoperative finding of aortic intra-annular abcess requiring emergent aortic valve replacement.
- Blood cultures grew **streptococcus viridians**.
- Though clinical course was complicated by cardiogenic shock and multi-organ failure, he fortunately made full recovery.
- Completed a six weeks course of antibiotics.

## Peripheral signs of IE

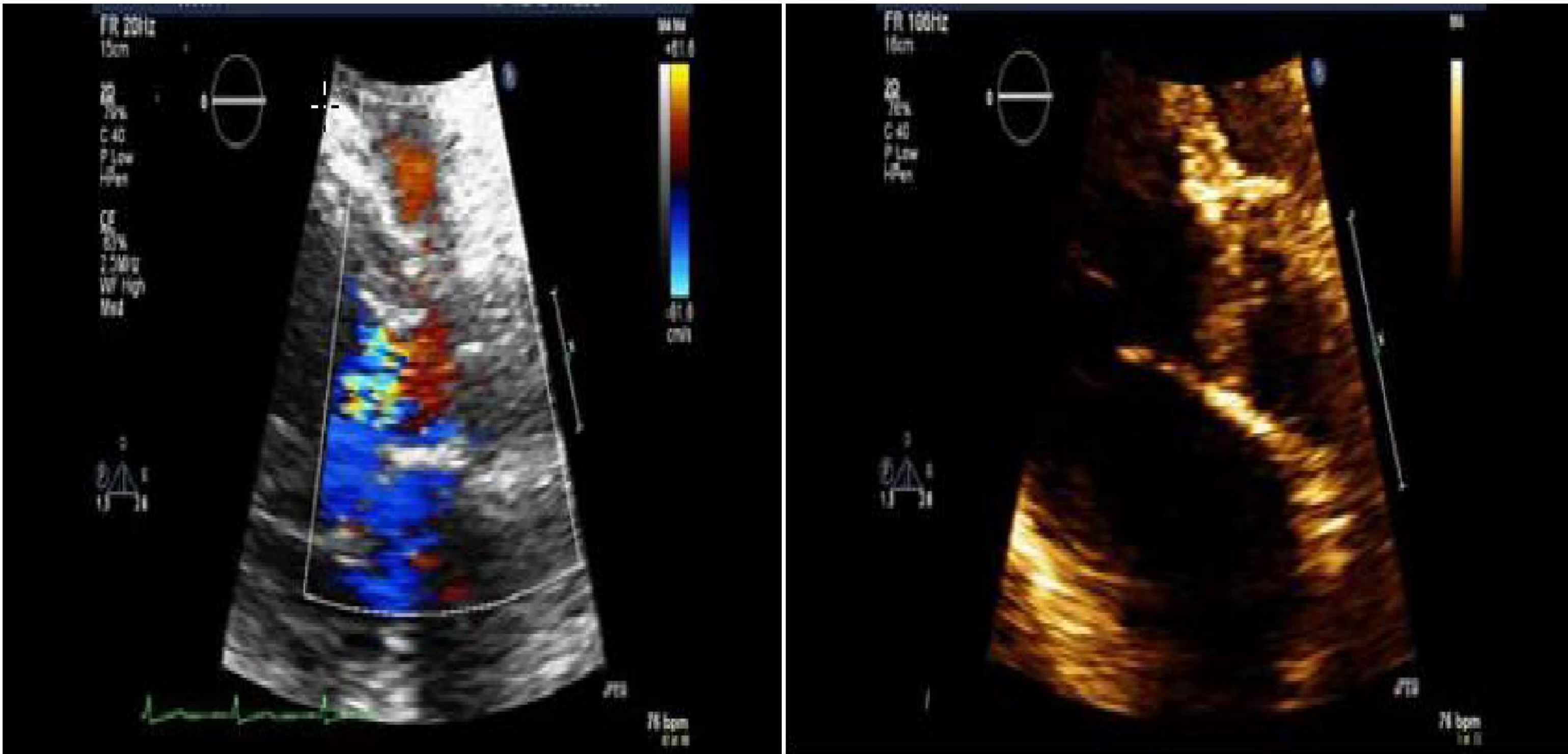


## Modified Duke Criteria for Diagnosis of IE

MAJOR CRITERIA	minor criteria	
1. Blood cultures positive for infective endocarditis	1. Predisposing factor <sup>a</sup>	Two major criteria or One major and three minor criteria or Five minor criteria <b>Definite Diagnosis</b>
2. Evidence of endocardial involvement	2. Temperature >38°C	
	3. Vascular phenomena <sup>b</sup>	One major and one minor criteria or Three minor criteria <b>Possible Diagnosis</b>
	4. Immunologic phenomena <sup>c</sup>	
	5. Microbiologic evidence <sup>d</sup>	

<sup>a</sup> Intravenous drug use or a predisposing heart condition.  
<sup>b</sup> Vascular phenomena include major arterial emboli, septic emboli, pulmonary infarcts, mycotic aneurysm, intracranial hemorrhage, conjunctival hemorrhages, and painful skin lesions (i.e., Janeway lesions).  
<sup>c</sup> Immunologic phenomena include glomerulonephritis, positive nodes (i.e., Osler's nodes), retinal hemorrhages with small, clear centers (i.e., Roth's spots), and positive rheumatoid factor.  
<sup>d</sup> Positive blood culture not meeting a major criterion or serologic evidence of an active infection with an organism known to cause infective endocarditis.

## TTE showing Aortic Insufficiency and questionable vegetation and leaflet disruption



## Risk factors for IE

- Cardiac factors (history of prior IE or pre-existing valvular or congenital heart disease),
- Underlying conditions (such as intravenous drug use, an indwelling intravenous catheter, or immunosuppression),
- Recent dental or surgical procedure.

## Treatment

- Treatment regimens for native valve endocarditis due to penicillin-susceptible viridans streptococci
- Aqueous penicillin** or **Ampicillin** or **Ceftriaxone** for 4 weeks
  - Beta-lactam-intolerant patients: **Vancomycin**

## Discussion

- S.viridans is part of the normal flora of the mouth which can cause dental caries, pericoronitis and subacute IE.
- Infections with Viridians Streptococcal is not uncommon but are routinely seen in those with **underlying heart disease** and dental manipulation.
- S.Viridians is responsible for up-to 40-60% of IE in normal valves and in patients (young males and over 45 years of age) usually with **mitral valves**.
- With S. viridians endocarditis, it is commonly associated with heart failure and lesion such as peri-annular abscesses, fistulas, or pseudo-aneurysms with risk of mortality at 15%
- Our report discusses a rather unusual presentation of a patient who is **immunocompetent with no risk factors** developing Viridians Streptococcal bacteremia with infective endocarditis of the **aortic valve** with inter-operative findings of aortic intra-annular abscess.

## Take Home Messages

- Despite advances in medical, surgical and critical care interventions, IE remains a life-threatening illness.
- Though subacute IE is commonly associated with S. viridans its **presentation can be atypical**. In addition patient had no known risk factors which would contribute to the development of IE.
- The rate at which S. viridans IE occurs in those without any dental manipulation, as of this case report, is unclear.
- On initial presentation IE was not excepted and patient was placed on broad coverage antibiotics for both viral and bacterial causes of ARDS.
- Early ECHO can be instrumental in early diagnosis of IE.
- The lack of supporting data in history and minimal findings on histopathology does not always exclude this pathogen as a cause.

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